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THE PLANT DISEASE BULLETIN

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The Plant Disease Survey

Number 3, September 15,

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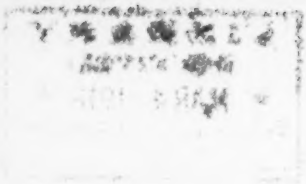

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REPORTS

During the last week of August special crop disease report blanks were sent to collaborators asking for information on the diseases of cabbage, corn, tomato and buckwheat as they occurred September 1. Number 3 of the Plant Disease Bulletin contains the more important facts thus collected, together with notes on the prevalence of certain other plant diseases.

BEANS

M. F. Barrus during a recent trip to the Pacific Coast visited bean fields in the states of Michigan, Idaho, Colorado, Utah and California. The beans in the four latter states were found to be practically free from all diseases with the single exception of those in Idaho where a small amount of bacterial blight was encountered. In Michigan frost has recently done a great deal of damage. Blight is very common. Anthracnose is scattered but is abundant in some places. Mosaic is quite common in Michigan, there being some in almost every field, in a few instances 50% of the plants being diseased.

Anthracnose caused by Colletotrichum lindemuthianum.

Colorado: Disease about as prevalent as usual.

Indiana: Common throughout the state. Not particularly abundant last year. The seed used this spring was considerably affected. The wet weather early in the season favored development.

Maine: Disease common and destructive wherever beans have been planted this year. There is much more this season than last when it was worse than usual. Infection of stems and leaves was common and serious, and pod infection is almost universal. In many instances pods were destroyed before the seeds began to enlarge. The almost continuous rainy weather since planting time has greatly favored the disease.

Mississippi: A slight amount of this disease in most of the bean growing sections. Prevalent in about the same amounts as last year. Pod infection is the most common form, as the weather was not favorable until near harvest time. The wax pod varieties are most affected.

Missouri: Anthracnose very prevalent at Springfield.

Washington: Disease very rare in state of Washington. Has not been observed anywhere this year and all of the market products are perfectly free from anthracnose.

Bacterial Blight caused by Bacterium phaseoli.

Colorado: Quite abundant this season. First appeared at Fort Collins during July. Pod infection is most common.

Indiana: Blight quite common, there being considerable injury to stems, leaves and pods. There was considerable loss in the seedling stage in some fields.

Maine: No case is reported in Maine this season.

Mississippi: Disease not important.

Washington: No authentic specimens have been observed from the state.

Other Diseases.

Rust caused by Uromyces appendiculatus is reported as occurring in Colorado, Indiana and Maine this season.

Mosaic is common in Indiana and one case is reported from Washington.

Rhizoctonia is the most important bean disease in Washington and stem rots, caused by Rhizoctonia and other fungi, are said to be abundant in Indiana.

CABBAGE

Club Root caused by Plasmodiophora brassicae.

Club root is common and in some places severe in the northeastern section of the United States. According to reports received the area within which the disease is of economic importance this season is bounded on the west by Michigan, Indiana, Kentucky and Tennessee and on the south by South Carolina.

Alabama (Hewitt): Club root is of rare occurrence. It has been reported in the hills in the northern section. High temperatures apparently limit seriousness of the disease.

Arkansas: Probably very little. It has been reported only twice in the last two years.

Colorado: Not reported this summer.

Delaware: Disease very common. It occurs in greatest abundance at New Castle, Newark and in the vicinity of Wilmington. First reported as occurring in the seed-bed, on April 15th at New Castle. It is estimated that 5% of the cabbage land is infested and on infested fields from 15 to 60% of the plants are diseased. Disease is particularly common on heavy land but this may be due to the fact that cabbage is most generally grown on such soils near larger cities.

Idaho: Disease not reported this season.

Indiana: Club root not common. One report from Lake County.

Kansas: No report of the disease.

Louisiana: Not known to occur in the state.

Maine: No specimens received this season.

Michigan: Found only in garden patches. Only one complaint received from cabbage fields during the past six years.

Mississippi: No record of the occurrence of club root in the state.

New Hampshire: Club root generally distributed but nowhere severe. First reported August 1, from Strafford county. Only a small amount of the disease in infested fields.

New Jersey: Frequently reported. Most abundant in the northern part of the state. First reported in June from Bayonne. Most prevalent on heavy soil.

New Mexico: Disease not reported.

New York: Club root general wherever cabbage is grown. Specimens have been received at the station this season from Livingston, Orange, Wayne, Courtland, Franklin and Monroe counties. First report was July 12, from Williamson. About 2% of the cabbage fields have more or less club root and the amounts vary from a trace to 100% this season. "The disease is usually most prevalent in undrained soil or in low places where the debris has been washed down. The occurrence of the disease is usually simultaneous with the occurrence of hot summer weather." -C. C.

North Carolina: Very prevalent and destructive in the state. All cabbages and collards diseased in eastern part of state.

Ohio: Club root is found in all cabbage growing districts and occurs in practically every county of the state. This season it was first reported May 25, Stark county. Black soils seem to be worse than others, also garden soils that have been heavily manured.

Tennessee: Club root not found during season.

Texas: No report this year.

Vermont: Common in market gardens and in many private gardens. It occurs in practically all counties of the state. First reported this season August 15 to 20 from Burlington. At least 10% of the cabbage land in Vermont is infested. Acid soils with an abundance of humus seem to be most favorable for harboring the organism.

Virginia: Disease not so common as formally. No reports received this year.

Washington: Not uncommon in the two cabbage sections. Definite reports are at hand from King and Pierce counties. The amount of disease is small in the fields observed, only 2 to 3% of the plants being diseased but in other places it is understood that there is considerably more.

West Virginia: Disease fairly common but not usually causing serious losses. First appearance this season in August at Elkins. From 1 to 2% of the plants in the infested fields examined were diseased.

Wisconsin: Disease in comparatively small amounts but fairly widespread and increasing. First appeared this season in July at Racine. The amount of infested cabbage land is small and on this land the percentage of the disease is not large. No relation has been observed between soil types and amount of disease. Practically all Wisconsin cabbage is raised on heavy loam soils containing more or less humus.

Cabbage Yellows caused by Fusarium conglutinans.

Yellows is common this year in the region from New York to the Carolinas, thence westward to the Mississippi River, and southwestward in the states of Arkansas, Texas and New Mexico. The area of infested land is said to be increasing in extent in most states.

Alabama: Very little of this disease, but scattering reports have been received from Mobile, Lee and Cullman counties.

Arkansas (Hewitt): Yellows is reported near Fort Smyth and near Little Rock. The trucking region in the southwestern corner of the state is probably too recently established to be badly infested. Last year a few resistant Wisconsin seed were planted about Little Rock but the varieties were late and unpopular.

Delaware: Disease common and increasing. First reported this year May 10, from Newark. It is estimated that 5 to 10% of the crop has been injured.

Indiana: Disease is common and increasing from year to year. Wisconsin seed in small amounts has been distributed. Most of the cabbage grown is of Kraut varieties.

Kansas: Disease not especially severe in the state. First reported July 10, from Bethel.

Louisiana: Yellows only known in two localities. Reported in May from Roseland. The amount of injury is slight.

Michigan: Three reports this year which are the first ever brought to the attention of the pathologists at the station. First reported August 15th from Monroe county.

Mississippi: Yellows is present in all cabbage sections of the state. First appeared May 1st at Crystal Springs. The amount of infested land is increasing from year to year. From 10 to 20% of the crop has been injured to date. No resistant seed is being planted.

New Jersey: Disease present and increasing from year to year. 5% of the crop has been injured. Samples of the Wisconsin resistant variety have been received by 100 growers.

New Mexico: More common than last year. First reported in July and increasing from one year to the next. 10 to 25% injured. No resistant varieties are being grown.

New York: Disease fairly common. First reported August 8 from Cortland. It appears to be increasing in the state. No data as to the percentage of injury but there was from 1 to 10% loss in the fields that have been reported.

North Carolina: Disease very widespread and the cause of considerable loss. No resistant seed is used as the Wisconsin strain is not resistant in North Carolina.

Ohio: Less disease than usual but the amount of infested land is increasing from year to year. Some resistant cabbage is being grown around Clyde.

Tennessee: Yellows reported from all parts of the state. First report July 14 from Springfield. About 10% injury to the crop this year.

Texas: Disease very prevalent and apparently on the increase.

West Virginia: Disease prevalent in about the same amounts as usual. First report August 1. It is in nearly every county as far as can be determined. Frequently as high as 25% of the crop is injured.

Wisconsin: Disease general on infested land. First reported in June from Racine. The area of infestation seems to be increasing slightly from year to year. 5% loss in counties where the disease is severe and where cabbages are grown extensively. The loss for the state as a whole is small. Nearly 300 pounds of resistant seed was used this year largely on infested fields of Racine, Kenosha and Brown counties.

Black Rot caused by Bacterium campestre.

Alabama: Disease very prevalent; widely scattered throughout state.

Arkansas (Hewitt): "Disease very common. Not a large percentage of loss so far, probably because cabbage interests are small and continuous cropping has not shown its effects. Seed treatment is not practiced." J. L. H.

Colorado: Black rot is quite abundant. First reported August 4. Losses are considerable but not accurately estimated as yet. Seed treatment practiced but little.

Delaware: Disease very common in all cabbage sections. First reported May 15. Loss estimated at 5%. Seed treatment is not practiced.

Indiana: Disease not especially abundant this year.

Louisiana: Black rot is not known to occur in the state.

Mississippi: Disease common and occurs practically everywhere cabbages are grown. Losses, however, are not extensive. First appearance in March. Seed treatment not practiced.

New Jersey: Scattered reports of disease throughout the state. Seed treatment is practiced very little.

New Mexico: Disease more common this year than usual. First appeared in July. Loss about 5%. Seed treatment not practiced.

New York: Black rot is known to occur in at least six counties this season. First appearance July 3. Only a few growers treat their seed.

Ohio: Disease less prevalent than usual so that losses are of little importance. Seed treatment is generally practiced in the kraut district but not elsewhere.

Tennessee: Common in all sections, occurring in practically every county that has been studied. First appeared in May. Loss 10%. No treatment of seed reported.

Virginia: Disease common. First appeared July 15. No seed is treated in the large cabbage section of Wythe and Smyth Counties.

Wisconsin: Black rot is general and occurs in all counties of the state. First appeared in June. Losses small to date, but may become serious if the month of September is wet. Scattered growers treat their seed as this practice has been recommended through the press and at Extension meetings.

Black Leg caused by Phoma oleracea.

Alabama: Disease never noticed in this state.

Arkansas: Present last year, not reported this year.

Delaware: Disease of sporadic occurrence and present in all counties. First appeared May 1. Loss difficult to estimate but in some cases there was 50% or more. Seed treatment is very effective.

Indiana: Black leg not abundant but observed occasionally.

Louisiana: No disease observed this year. Small amounts have been present in other years.

New Jersey: Disease occurs in scattered districts, particularly in Cape May County.

New York: One report of the disease received from Suffolk County Aug. 1.

Ohio: More black leg this year than last. It occurs in all cabbage-growing counties. First appeared May 1. 2-3% loss in the kraut district. Seed treatment not effective. Seed-bed treatment is advised.

Virginia: Disease slightly prevalent. First appeared July 1.* 10 to 15% loss was observed in a field of cabbages that were just beginning to head. In Smith county the disease was found only in fields which had been planted from one lot of seed from the same source. Other fields were free from it.

West Virginia: Black leg reported but once in August.

Wisconsin: Black leg generally prevalent. First appeared this year in June. Losses in some fields are heavy. Seed treatment is effective if the seed is planted in a clean seed-bed and plants set in clean fields.

Root Knot caused by Heterodera radicicola.

Alabama: Disease present everywhere in the state especially in home gardens.

Arkansas (Hewitt): Root knot widespread in sandy regions. Nematodes are a pest of all garden crops.

Delaware: Disease common in Sussex county.

Louisiana: Not especially common this year although no survey has been made.

Tennessee: None reported this year. Last year there was some damage from this trouble.

Texas: Disease prevalent with approximately 1% loss.

Other Diseases.

Alabama: Black mold caused by Alternaria brassicae is reported especially on collards. Rhizoctonia and Sclerotium Rolfsii are very common. Last winter cabbage fields of Mobile county were badly attacked by cabbage "drop" due to Sclerotinia libertiana. Some of the fields were so badly affected that 50% of the crop was lost. The variety Successive appeared to be most susceptible. Infection apparently occurs in the seed-bed from the soil. This appears to be the most important cabbage trouble in Alabama.

California: Ring spot of cauliflower caused by Mycosphaerella brassicicola is getting very abundant on the winter crop in some sections but it is not prominent this season.

Delaware: Bacterial soft rots are very common there being from 3 to 5% loss.

Louisiana: Rhizoctonia is very common. It not only causes a damping off disease but seems to be the cause of black shank disease of cauliflower in the state.

Virginia: Damping off causes some trouble every year. Cabbage seed is sown in hills in the field. Because of this a high percentage of plants are lost by damping off, but enough survive to provide an even stand.

CORN

Smut caused by Ustilago zeae.

In addition to inquiries relating to the occurrence and prevalence of smut the three following questions were asked of collaborators, September 1:

(1) Do you consider the disease to be increasing in the corn regions of your state?
(2) Does continued cropping to corn seem to increase the amount of disease.
(3) Do your observations indicate that the disease is more prevalent on high land than on low?

The answers to these, given below in tabulated form in the last three columns seem to show that the disease is increasing in the corn-growing areas; that continued cropping, especially if accompanied with heavy manuring, increases the amount of smut; and that the elevation of the land is not an influencing factor.

In general, the amount of corn smut seems to be somewhat greater this year than usual.

Table 1.- Summary of Reports on the Occurrence of Corn Smut, Sept. 1, 1917.

State	Prevalence as compared with average.	Date of first appearance.	Disease increasing or not in corn regions.	Effect of continued cropping.	Influence of altitude.
Ala.	Less	June	Seasonal variation only.	Increases.	Low land favorable.
Ark. (Hewitt)	Much greater	Early	Increasing.	Increase especially noted in Ozark Co.	--------
Ark. (Elliott)	Slightly more	August	Prob. Increasing.	Increases.	High land favorable.
Del.	About same	July 15	About same	Continued crop. plus heavy manuring increases.	--------

State.	Prevalence as compared with average.	Date of first appearance.	Disease increasing or not in corn regions.	Effect of continued cropping.	Influence of altitude.
Colo.	Same, abund.	Early Aug.	Increasing.	Probably increases.	———
Fla.	Considerably more.	July 5	Increasing, rarely noted until recently.	———	———
Ind.	About same.	———	No data.	Increases.	Probably does not influence.
Kan.	More.	July 1	Increasing when rotation is not practiced.	Decidedly increases.	No influence.
La.	More (very abundant).	Early July	Apparently increasing.	No evidence.	No influence noted.
Maine.	About same.	———	———	———	———
Mich.	Less.	———	Not increasing.	Increases.	———
Miss.	About same.	July 1	Not increasing.	Increases (on very fert. soils).	No influence noted.
N. H.	About same.	Aug. 17.	———	———	———
N. Y.	About same.	July 20.	———	Probably increases.	———
N. C.	About same.	June.	Not increasing.	Increases.	No influence.
Ohio.	Slightly more.	———	Not increasing.	Not unless associated with manuring.	No influence.
Penn.	None.	———	———	———	———
Tenn.	About same.	July 1	Not increasing.	Increases.	No influence.
Texas.	Very abundant.	———	Increasing.	Increases.	———
Vermont.	Less (rare).	Aug. 15.	Not increasing.	Does not increase.	No influence.
Va.	About same.	———	Not increasing.	———	———
W. Va.	About same (severe).	July.	Increasing.	Increases.	No influence noted.
Wisc.	About same.	July.	Not increasing (advent of silo has reduced.)	Wisc. farmers rotate.	———

Leaf Stripe Disease caused by Helminthosporium inconspicuum or Helminthosporium turcicum.

Alabama: Probably widely scattered but doing little or no damage. Only leaves here and there in fields are affected. This is not a serious disease in the state as yet.

Arkansas: Disease common on both sweet and field corn and is undoubtedly a large factor in killing some of the leaves.

Louisiana: Disease is very common on the lower leaves of corn but it is difficult to say how much of a loss may be due to fungi, dry weather, soil conditions etc.

Maine: The first specimen of Holminthosporium on corn leaves was received in Maine this year from York county.

New York: Leaf stripe reported from Orange, Suffolk and Tompkins counties, but in no case was it doing much damage.

North Carolina: Disease unimportant. Has been collected at Raleigh.

Pennsylvania: Definite reports have been received from one of the northern counties in the state.

Tennessee: A disease very much like this is present on corn around Knoxville. The blades become striped and die.

West Virginia: Disease present but doing no damage.

Rust caused by Puccinia sorghi.

Collaborators in the following states list Puccinia sorghi as being of economic importance: Alabama, Arkansas, Indiana, Louisiana, Michigan and Ohio. It is regarded as being of little or no economic importance in the states of Delaware, Colorado, Kansas, Maine, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Texas, Vermont, Virginia, West Virginia and Wisconsin. In some states the fungus is reported as killing all the lower leaves but in most places it appears so late in the season that comparatively little damage results. Fodder corn and sweet corn are most injured

Physoderma Disease caused by Physoderma Zeae-maydis.

Since the issue of the last Plant Disease Bulletin, Physoderma disease has been reported from five other counties in the state of Tennessee as follows: Madison, Franklin, Rutherford, Monroe, and Knox. The accompanying map showing the present known distribution of Physoderma on corn together with the areas in which it is known to be doing some damage has been kindly fur-

nished by Dr. W. H. Tisdale of the Office of Cereal Investigations, who is working with this disease in the south.

The Plant Disease Survey has recently sent into the field a force of twelve scouts who will make a careful survey of corn fields in the southern states where Physoderma is known to occur or where there is likelihood of its presence. This is a part of an effort to obtain authentic information regarding the distribution, economic importance, influencing factors, etc., in order that suitable control measures may be adopted.

Other Diseases.

Arkansas: "Ear molds caused by Fusarium are serious. They constitute the limiting factor in the production of some varieties. The affectation often follows ear worm injury but may be quite serious independently." J. L. H.

Florida: "Diplodia zeae was found rather abundantly on dead stalks of corn from the 1916 crop in the vicinity of Gainesville. It has not been noted so far in connection with ear rots." H. E. S.

Louisiana: "Fusarium and Diplodia rots occur to some extent but injury is usually not large. A stem rot of uncertain cause sometimes does considerable damage but it has not been reported this year. Corn rust probably does more damage than any other disease in Louisiana." C. W. E.

Tennessee: "A bacterial root rot on field corn has done much damage in sections of middle Tennessee and a blade blight of young corn was reported from one county early in the season."- S. H. E.

COTTON

A report received from the important cotton-growing state of Mississippi shows that anthracnose is present in all sections of the state but most abun-

dant in the low lands. Very few growers make any effort to control this disease.

Wilt is present in some fields in large amounts, in some cases 50% damage is reported. The area of infested cotton land is increasing.

Root knot is causing a good deal of loss.

Potash hunger is not at all serious. When it does occur it is found in very sandy regions in the southern parts of the the state.

Angular leaf spot is very common and the cause of a good deal of boll rot and seedling injury.

FLAX

North Dakota: Wilt caused by Fusarium lini is about as destructive as usual where non-resistant seed was used on old land. This varies according to the condition of the land and seed. First appeared this season May 1 to 10 at Fargo and other points. Formaldehyde treatment is effective on plump bright seed not internally infected. Treatment is not effective if the soil is infested. The pure bred strains of resistant flax are entirely resistant under normal weather conditions.

Rust caused by Melampsora lini is less common than usual, there being only a few scattering pustules noted. This disease causes great damage in case of plants grown for fibre, and is also very destructive on plants grown for seed in case the weather conditions are favorable to the disease. Resistant varieties are recommended.

Canker is rather more prevalent than usual this season. Frequently the disease is more common on virgin soil than on old fields. It usually develops as soon as the flax begins to appear.

OATS

Oat Smut caused by Ustilago avenae and U. levis.

Reports on oat smut have been received from three more states where the disease occurred this season in about the same amounts as usual.

Kansas: About 8% loss in untreated fields and 1% or less in fields where the seed was treated. It is estimated that about 10% of the seed oats were treated this spring. Nine counties are listed as being much in need of seed treatment demonstration work.

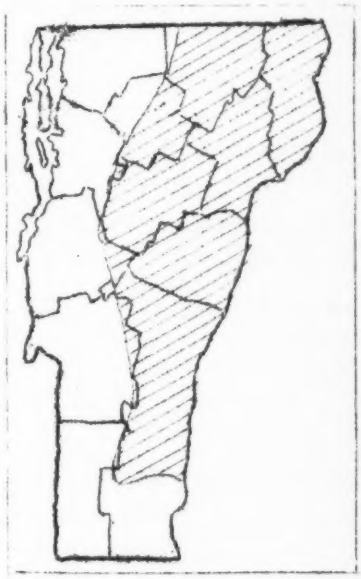
Mississippi: From 0 to 10% loss in fields planted with untreated seed. Every county in the state is in need of extension work along the lines of seed treatment.

Washington: Oat smut in this state appears to be due almost entirely to Ustilago levis. Little or none of the species U. avenae occurs. In untreated fields the amount of smut varies from 0 to 25 or 30%, while in treated fields there is only a fraction of 1%.

POTATOES

Late Blight caused by Phytophthora infestans.

Vermont: Collaborator B. F. Lutman returning from a recent field trip through the potato sections of Vermont has furnished the following report on late blight: "Blight has struck the better potato growing regions of the state with the exception of fields at Rutland and Bristol. The disease has occurred throughout the state in scattered fields since the first week in July, but since the middle of August it has become very destructive in the eastern portion of the state and at the present time (Sept. 7) all the foliage is dead on three-fourths of the plants in the area shown on the map. The fields that were thoroughly sprayed have escaped to a considerable extent, but all fields show it on every plant. The tubers are rotting in some parts of the affected portions of the state and the growers are getting them out as rapidly as possible, as the wet weather has continued, and the ground is soaked. Few fields on the west side of Vermont are affected to any extent, although some plants show a little blight in almost every town." B. F. L.



Washington: A small amount of blight has appeared in the Coast regions but no serious outbreaks are reported. There is less of this disease at present than at the same time last year, the season being too dry for its development. In eastern Washington there has been no rain since the first of June although the Coast counties have had a little. The chances of a serious outbreak this late in the season are small.

Potash Hunger.

Maine: This disease is prevalent but in less amounts than last year. No cases have been seen that were as bad as those in 1917.

Washington: Last year this was one of the most common troubles on light soils judging from specimens sent in. This season however, no reports regarding disease on this year's crop have been received.

Rhizoctonia Stem Rot caused by Rhizoctonia solani.

Indiana: Disease abundant and severe this year, being present in some places to the extent of 50% of the plants. Much of the seed used was badly covered with sclerotia. The stem rot form of the disease is most common at the present time.

Kansas: Rhizoctonia has been very apparent this year in most of the fields, running anywhere from 1 to 15 or 20% of the crop. This disease has been responsible for numerous missing hills in many fields, the plants being severely injured when they were five or six inches tall. In most cases, it was found that the seed had not been treated, having been shipped in from the north.

Maine: Rhizoctonia injury not observed in as great quantities as usual.

Washington: This is the most serious disease of potatoes in the state. It is more severe this year than last on account of dry weather. Some fields are very seriously damaged.

Other Diseases.

Mosaic is rather common in Maine, but only a few severe cases have been noted this season. Red Rhine variety is affected worst, Green Mountain next, and Cobblers are almost entirely free.

The potato disease that is next in importance to Rhizoctonia in Kansas is black leg. The injury from this disease ran as high as 25% in some fields. There were also a number of cases of a combination of black leg and Rhizoctonia injury. This year will probably be sufficient to demonstrate to the farmers that they will have to treat seed hereafter before it is planted.

Black leg is quite common and causing considerable damage in Indiana. In some cases a 20% loss is reported. Early blight caused a great deal of damage to the potato crop in Mississippi early this season.

Tip Burn.

"Tip burn was perhaps the most common injury of all in Kansas this season. By the middle of July most of the fields were beginning to turn very brown and the vines in many cases were already dead. July was extremely warm and little rainfall occurred." - L. E. M.

"The regions in Vermont that are not affected by late blight are struck by tip burn but only a little more seriously than normal for this section. On sandy soil the plants have suffered worst and even the late varieties are in some cases all dead. Between late blight and tip burn the crop is cut down to almost a normal one. The increased acreage was estimated by the county agents at a recent meeting at about 50% for all the state, but these two diseases will reduce the yield between 25 and 50%, depending upon the amount of rot that will follow the blight."- B. F. L.

RYE

Ergot appeared in epidemic proportions in some places in Indiana. In one field there was as much as 30%.

Anthracnose occasionally found. In one field there was nearly 100% loss.

SWEET POTATO.

Wilt caused by Fusarium batatatis.

Kansas: Disease occurs in all sweet potato sections of the state. All varieties are affected. Losses range from 17% to 30% or 40%. Disease is apparently on the increase with the result that the area devoted to sweet potatoes is decreasing.

Mississippi: Disease first observed this year July 18. Losses are large in places. Nancy Hale one of most susceptible varieties.

White Rust caused by Albugo Ipomoeae panduranea.

Kansas: Disease appeared in August. In some years it is very prevalent.

Mississippi: Very little white rust this year.

Other Diseases.

In Mississippi the disease caused by Sphaeronema fimbriatum is the most destructive of all sweet potato troubles, doing damage both in field and in storage.

TOMATO

Reports on tomato diseases have been received from the following states: Arkansas, California, Colorado, Delaware, Indiana, Kansas, Michigan, Mississippi, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington and West Virginia. The absence of a note from any of these states indicates that the particular disease is of little or no importance.

Wilt caused by Fusarium lycopersici.

Fusarium wilt has done an unusual amount of damage in some of the Southern States. Reports of extremely serious losses come from California, Texas, Mississippi and New Mexico. There follows detailed reports from individual states.

California: A wilt disease, apparently Fusarium, is unusually abundant this year and threatens to cause serious losses. This particular trouble does not appear regularly from year to year but is of sporadic occurrence. Seems to occur on new soil in same amount as old soil.

Delaware: Disease quite common in the central part of the state. First appeared July 1 and is now causing losses ranging from 5 to 10%. It seems that the amount of wilt is increasing from year to year. Poorly drained soils are very subject to the disease. Resistant varieties and rotation of crops is advised.

Indiana: Common in some sections but not as prevalent as usual. In general the amount of disease seems to be increasing from one year to the next. Rotation of crops is recommended.

Mississippi: Fusarium wilt is very common all over the state. It was first reported this year May 20. Losses in commercial fields do not run over 5% but in home gardens the crop is reduced 25% on an average. The amount of infested soil seems to be increasing rapidly from year to year. No relation is noted between soil type and amount of disease. Rotation is quite successfully employed.

New Jersey: Reported this year in two sections in June. Amount of disease is annually increasing. Rotation is recommended.

New Mexico: The past year has been the worst ever experienced as far as Fusarium wilt is concerned. There is possibly some doubt as to whether or not this particular Fusarium wilt in New Mexico is caused by Fusarium lycopersici. It was first noticed in July and the losses range from 5 to 50%. In some places fields were entirely destroyed. The first report of this disease was in 1904. Since that time it has been increasing from year to year until now it is the worst disease in the state. The disease is common on sandy as well as adobe soils. Selection of seed for resistant varieties in badly infested fields is being advised.

Ohio: Disease is more prevalent than usual this season. First reported June 15. The losses amount to nearly 25% in many cases. The amount of damage is increasing from one year to the next. Rotation is being practiced and resistant varieties are being used with good success.

Pennsylvania: Disease reported several times. First appeared in July.

Tennessee: The disease is common in all tomato sections. It first appeared this year June 1. Losses range from 10 to 75% and the disease is increasing. Crop rotation and the use of resistant varieties are being practiced with marked success.

Texas: Disease very prevalent.

Virginia: Fusarium wilt is widespread. The losses may amount to 25% this season. Apparently the disease is on the increase. Some fields have been abandoned for tomato culture. Rotation is being employed and it is expected that some resistant strains will be introduced.

West Virginia: About the same amount of disease as usual. First reported in July. Losses quite heavy, especially in the Ohio Valley. The disease is worse on river bottom land and in soil containing a considerable amount of fresh humus. Rotation practiced with uncertain succes

Bacterial Blight caused by Bacillus solanacearum.

This disease appears to be attracting only a little attention this season as it has been reported from only two states, Tennessee and West Virginia. In the former state it was first noticed July 1 at about the time when the fruit was setting. In some fields there was a loss of 60%. The Stone variety appeared most susceptible.

In West Virginia the disease is quite general but not severe at any place so that the losses are comparatively small. Usually appears in this state about two or three weeks after blossoming time.

Septoria Blight caused by Septoria lycopersici.

Septoria blight has been prevalent this year in most tomato-growing sections of the United States. It is estimated that the losses from this disease are almost as great as those resulting from Fusarium wilt. The following summary of reports from collaborators has been prepared.

Table 2.- Summary of reports on the occurrence, importance, and control of Septoria blight caused by Septoria lycopersici.

State	Prevalence	Earliest Report	Importance	Effectiveness of Bordeaux
Ark.	Very prevalent.	July	5-10% injury.	----------
Calif.	Not serious.	-----	----------	----------
Colo.	Prevalent.	-----	One of most important tomato diseases.	Effective if applied early.
Del.	Gen. prevalent.	June 20	Very important.	----------
Ind.	Abundant, espec. in south.	-----	Serious	----------
Kansas	Practically absent this year.	-----	----------	----------

State	Prevalence	Earliest Report	Importance	Effectiveness of Bordeaux
Mich.	Not prevalent.	-----	---------	----------
Minn.	Abundant.	-----	---------	----------
Miss.	Gen. prevalent.	May	Slight importance.	Usually effective.
N. J.	Abundant.	July	Most important foliage disease.	----------
N. Y.	Prevalent	June	---------	----------
Ohio	Much less than usual.	June 15	Most important foliage disease.	Effective.
Ore.	Never been reported.	-----	---------	----------
Penn.	Fairly prevalent.	-----	---------	----------
Tenn.	Gen. prevalent.	In seedbed.	Next in importance to Fusarium wilt.	Effective.
Texas.	Not prevalent.	-----	---------	----------
Va.	Very prevalent. Almost universal.	July 15	Always important. Often reduces yield 50%.	Not effective.
W. Va.	Same as usual.	June	Very important.	Not entirely. Reduces injury.

Alternaria Blight caused by Alternaria solani.

California: Some loss early in season, killing the terminal growth. Occurs during moist weather which comes in spring or late fall in California.

Delaware: Quite general this year. Appeared July 1. The amount of injury done however, is not important. It is thought that drought increased the amount of disease.

Indiana: Common this year but not observed to be serious in any way.

Michigan: The disease is present but the amount of damage is small.

Mississippi: The disease is present in only small amounts this year. It was first noticed March 22. Injury to the foliage is only slight and

no injury has been noted on the fruit. Spraying seems to hold the di ease in check. It is most destructive during wet springs such as was experienced in 1913.

New York: Disease is present wherever tomatoes are grown. In some places all foliage is killed. No authentic reports of fruit injury are on record. It is believed that when spraying is begun in time it will hold the disease in check. More abundant in seasons when the rainfal has been heavy.

Ohio: Disease generally prevalent in the southern part of the state but not serious. First reported July 10. It is estimated that 50% of the foliage is damaged but fruit injury is very small. Spraying tends to hold the disease in check. Its appearance is coincident with hot, dry weather and little rainfall following colder weather with heavy rainfall.

Tennessee: Disease is common this year and appeared June 1. About 50% of the foliage is more or less affected and slight injury to the fruit associated with blossom end rot is reported. Spraying is somewhat effective. More injury is noted in wet than dry weather.

West Virginia: About the same amount as usual but the extent of the injury to the foliage is very slight as compared with that due to Septoria Only a small percentage of the fruit is spotted.

Phoma Rot and Blight caused by Phoma destructiva.

Delaware: Disease common on fruit. First reported July 30 from Newark. Usually appears at time of maturing. Some varieties appear very susceptible and others quite resistant in Delaware. It is probable that drought is favorable to the disease.

Tennessee: Phoma was found in small amounts at Knoxville in June. Some was sent in also from Cleveland.

Blossom End Rot (Physiological).

California: Not as abundant as usual this year.

Colorado: Not abundant. Drought conditions favor development.

Delaware: This trouble is common on susceptible varieties such as Greater Baltimore. Stone and Bonny Best are less affected. Drought conditions have been somewhat favorable for the disease.

Indiana: Not at all common in some sections. Dry weather or irregularity in moisture supply favors it.

Kansas: Practically none this year.

Michigan: Common but not reported as serious probably because the crop has largely failed to ripen.

Mississippi: This disease is common all over the state in every community. Probably there will be about 40% loss. The injury took place during the dry weather in June and stopped when the rain came later. Variety Stone was especially susceptible and Early Detroit, Mascot and Globe were more or less resistant.

New York: Disease fairly prevalent. Reported in most cases at a time when the weather had been wet.

Ohio: Blossom end rot unusually prevalent this season. The third and fourth sets were affected.

Oregon: Abundant this year. Entire season has been dry, somewhat hot and often windy. Little or no rain in the state since June.

Tennessee: Common in all sections. Appears always in dry weather and especially on clay soils. All varieties seem to be affected.

Texas: Disease occurs in unusual amounts this year.

Virginia: Disease common. The early drought caused considerable loss but rainfall checked it.

Washington: "Very little this year. Temperature this season has been moderate and there has been almost no rain. Two years ago when the disease was very prevalent with us the season was dry and the month of August was extremely hot."- F. D. H.

West Virginia: Blossom end rot quite prevalent. The season has shown nothing abnormal except cold wet weather until June.

Other Diseases.

Mosaic is abundant in Delaware. It is planned to select seed from the non-infected varieties. In California it has been causing some trouble, and in Indiana and Kansas it occurs to some extent but is not serious.

Cladosporium fulvum caused a very important greenhouse disease in Michigan. 20% loss was experienced in one greenhouse. This trouble was also reported as being fairly common in some of the greenhouses in New York.

Early blight or Western blight is probably the most serious disease of tomatoes in Oregon. Great losses have occurred this year in some patches. There are no means of prevention or control. It is probably one of the chief limiting factors to tomato growing in the state.

"Late blight due to Phytophthora infestans quite prevalent in West Virginia, causing serious losses in higher sections. Seems to have been especially bad in the central and southeastern portion of the state."- N. J. G.

"A conspicuous trouble which seemed very prevalent in many places in Kansas was the so-called blossom drop. Is more or less conspicuous every year in state. Cause or factors entering into the trouble have not been solved. Plants are very thrifty, blossom profusely but the blossoms drop. Indications do not tend toward any factor in general which can be responsible for the disease."- L. E. M.

WINTER WHEAT

Additional reports on the occurrence of wheat diseases have been received from four states.

Bunt caused by Tilletia foetens and T. tritici.

Indiana: Bunt is prevalent in about the same amounts as usual, occurring locally.

Kansas: "In the seed survey of the state an estimate of the amount of bunt occurring in many fields was taken. The percentages ran waywhere from 1 to 25%. Most of the fields inspected ran between 2 and 5% but some of them ran 10, 14 and 15% and a few as high as 25%. The names of the farmers owning these fields were secured and literature and letters were sent them urging them to treat their wheat."- L. E. M.

New Mexico: Disease is quite common throughout the state. About 10-20% loss this year.

Washington: The amount of bunt this season appears to be very much less, due to the larger acreage of spring wheat that was planted on account of the winter killing of the fall seeded grain. The entire wheat country is infested and the amount of disease increases in severity from the west to the east.

Loose Smut caused by Ustilago tritici.

Indiana: Prevalent in about the same amount as usual. Disease is always common.

Kansas: Loose smut is present in about average amounts, ranging anywhere from a trace to 1%. In some cases it may be a little higher but on the average the amount is between $\frac{1}{4}$ and $\frac{1}{2}$%.

Washington: Occurs only in traces. Never been seen in sufficient abundance to be a factor in wheat production.

Other Diseases.

Scab is reported as being very abundant in Indiana. The amount of loss from this one disease in some cases will be as high as 60%. It is one of the most serious diseases occurring in the state.

Wheat rust caused by Puccinia triticina appeared later than usual this year in Indiana. This being the case, it will not be of much economic importance. When infection takes place early it is of importance.

Yellow strip rust caused by Puccinia glumarum has not been seen in Washington this season. It was very severe two years ago and less last year.